

**WAPELLO ELEMENTARY SCHOOL (PWS 6060088)
SOURCE WATER ASSESSMENT FINAL REPORT**

June 26, 2002



**State of Idaho
Department of Environmental Quality**

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for the Wapello Elementary School, Blackfoot, Idaho* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the public water system (PWS).**

The Wapello Elementary School (PWS # 6060088) is a non-community, non-transient water system. The drinking water system consists of one well source. The well serves approximately 180 persons and is located on the school's property.

The potential contaminant sources within the delineation capture zones include dairies, underground storage tanks (USTs), leaking underground storage tanks (LUSTs), a landfill transfer station, and wastewater land application (WLAP) sites. Also found were sites regulated under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), Superfund Amendments and Reauthorization Act (SARA), Resource Conservation Recovery Act (RCRA), National Pollutant Discharge Elimination System (NPDES), and the Toxic Release Inventory (TRI). Additionally, Wapello Road (road is within 15 feet of the well), Highway 26/91 and a railroad are transportation corridors that cross the delineations. If an accidental spill occurred from any of these corridors, inorganic chemical contaminants, volatile organic chemical contaminants, synthetic organic chemical contaminants, or microbial contaminants could be added to the aquifer system. Other sources identified that may contribute to the overall vulnerability of the water source were the extensive irrigation canal systems and businesses within the delineated areas that may be considered potential contaminants sources. A complete list of potential contaminant sources is provided with this assessment.

For the assessment, a review of laboratory tests was conducted using the Idaho Drinking Water Information Management System (DWIMS) and the State Drinking Water Information System (SDWIS). Total coliform bacteria have been detected at several sample locations in the distribution system between September 1998 and September 2000. The inorganic chemicals, barium, fluoride, and nitrate have been detected in the drinking water, but at levels below the maximum contaminant level (MCL) for each chemical. No volatile organic chemicals or synthetic organic chemicals have been detected in the drinking water.

Final susceptibility scores for the Wapello Elementary School drinking water system were derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of final susceptibility the well automatically scored high for IOCs, VOCs, SOCs, and microbial contaminants because Wapello Road was located within 15 feet of the well. Hydrologic sensitivity and system construction scores rated high. Potential contaminant inventory and land uses scores rated high for IOC, VOC, and SOC, and moderate for microbials.

The capture zones for the well intersects a priority area for the synthetic organic chemical atrazine. The organic priority area is where greater than 25% of the wells in the area show levels greater than 1% of the primary standard or other health standards (maximum contaminant level is 3 micrograms per liter for atrazine). Atrazine is a widely used herbicide for control of broadleaf and grassy weeds.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Wapello Elementary School, drinking water protection activities should continue efforts aimed at keeping the distribution system free of microbial contaminants that may affect the drinking water quality. If microbial contaminants continue and/or arise, Wapello Elementary School may want to consider the addition of a disinfection system. In addition, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). The well should maintain sanitary standards regarding wellhead protection. Also, any new sources that could be considered potential contaminant sources in the well’s zones of contribution should also be investigated and monitored to prevent future contamination. No potential contaminants (pesticides, paint, fuel, cleaning supplies, etc.) should be stored or applied within 50 feet of the well. Land uses within most of the source water assessment area are outside the direct jurisdiction of the Wapello Elementary School. Therefore partnerships with state and local agencies, industrial and commercial groups should be established to ensure future land uses are protective of ground water quality. Educating employees and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods, proper lawn and garden care, and the importance of water conservation to name but a few. There are multiple resources available to help water systems implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture and the Bingham County Soil and Water Conservation District. As major transportation corridors intersect the delineation (such as Highway 26/91), the Idaho Department of Transportation should be involved in protection efforts.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR WAPELLO ELEMENTARY SCHOOL, BLACKFOOT, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are contained in this report. The list of significant potential contaminant source categories and their rankings used to develop this assessment is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the well, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

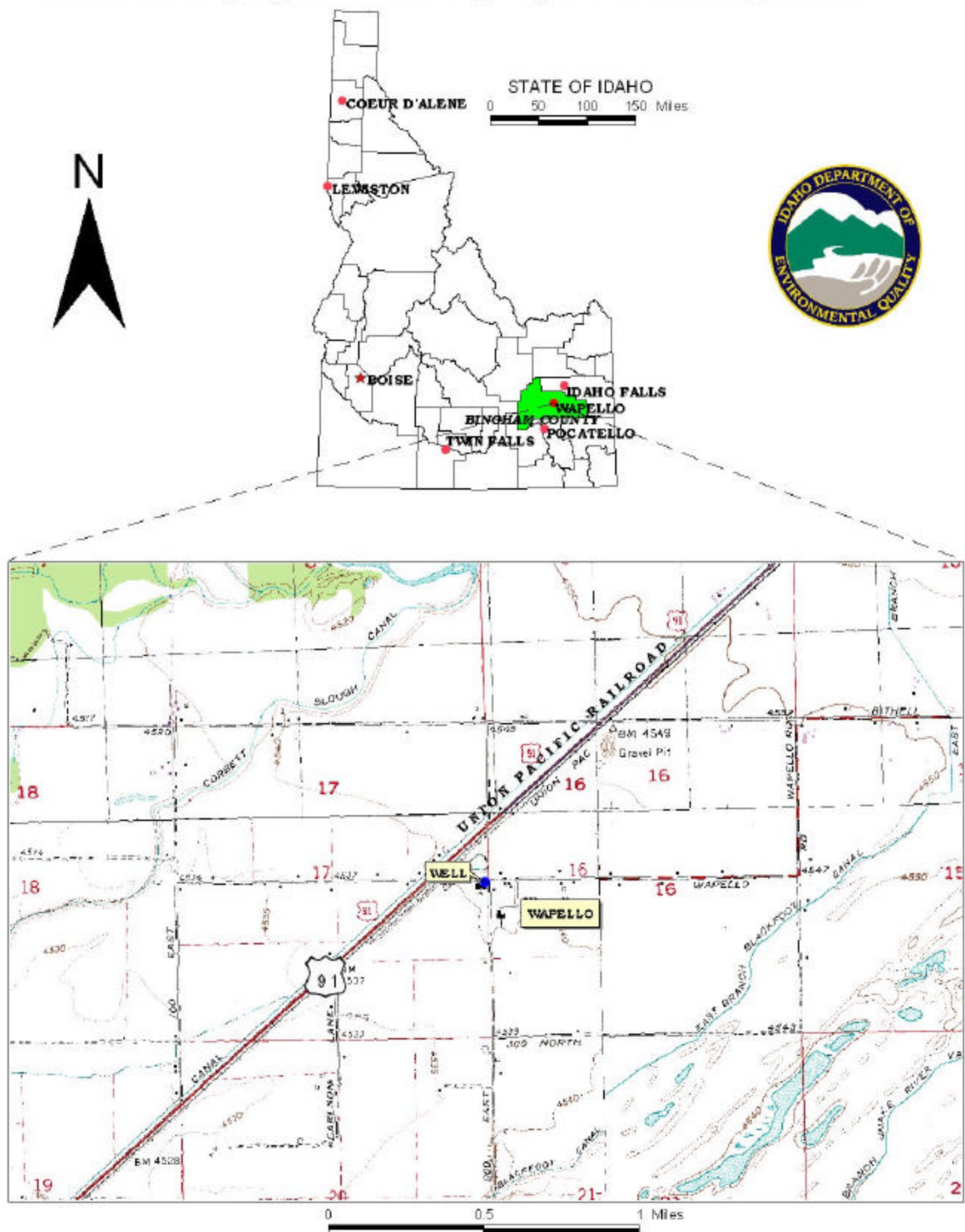
The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Wapello Elementary School is a non-community, non-transient public drinking water system located in Bingham County (Figure 1). This system consists of one well source that provides drinking water to approximately 180 persons. Total coliform bacteria were detected in the distribution system between September 1998 and September 2000. Subsequent samples have not detected total coliform bacteria in the distribution system.

FIGURE 1. Geographic Location of Wapello Elementary School



The IOC's barium, fluoride, and nitrate represent the main water chemistry constituents recorded in the public water system, although the reported concentrations of these chemicals were below the maximum contaminant level (MCL) for each chemical, as set by the EPA. Water chemistry tests have not detected VOCs or SOCs in the drinking water.

Defining the Zones of Contribution--Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a pumping well) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the public water system's zones of contribution. WGI used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) Time-of-Travel (TOT) for water associated with the East Margin Area of the Eastern Snake River Plain (ESRP) hydrologic province in the vicinity of the Wapello Elementary School. The computer model used site specific data, assimilated by WGI from a variety of sources including well logs (when available), operator records and hydrogeologic reports. A summary of the hydrogeologic information from the WGI report is provided below.

Hydrogeologic Conceptual Model

The East Margin Area encompasses 821 square miles, representing approximately 8 percent of the total area of the ESRP hydrologic province. The majority of the East Margin Area is within Bingham County, with small areas occurring in Bannock, Bonneville, and Power counties.

The regional ESRP aquifer is the most significant aquifer in the East Margin Area and consists primarily of basalt of the Quaternary-aged Snake River Group. However, additional water-bearing units are used for water supply along the margin of the ESRP. In order of decreasing age, the most significant aquifers in the Michaud Flats area are bedded rhyolite (volcanic rock) of the Tertiary-aged Starlight Formation and Quaternary-aged gravels of a low relief plain formed by running water (pediment), basalt of the Big Hole Formation, and stream deposits of the Sunbeam Formation (see Jacobson, 1982, p. 7, and Corbett, et al., 1980, pp. 6-10). A few shallow domestic wells in the central Michaud Flats area also are completed in Michaud Gravel, which is the shallow water-table aquifer. The American Falls Lake Beds Formation (AFLB) confines the deeper aquifers and averages 80 feet in thickness in the central Michaud Flats area (Jacobson, 1984, p. 6). The AFLB pinches out in the eastern Michaud Flats area near the Portneuf River, effectively combining the shallow and deep stream deposits into a single water table aquifer (Bechtel, 1994, p. 2-2). Other aquifers in the East Margin Area include fractured quartzite that has been developed near Blackfoot, stream deposits near the cities of Firth and Basalt.

PWS wells in the East Margin Area of the ESRP province produce water from five different aquifers: the Regional Eastern Snake River Plain aquifer, three alluvial (or stream deposited) aquifers (Eastern Michaud Flats, Firth/Basalt, and Gibson Terrace/Pocatello Bench) and a quartzite aquifer (Blackfoot).

Regional Eastern River Plain Aquifer

The ESRP is a northeast trending basin located in southeastern Idaho. The 10,000 square miles of the plain are primarily filled with highly fractured layered Quaternary-aged basalt flows of the Snake River Group, which are between (intercalated) layers of rocks formed by sediment deposition (sedimentary) along the margins (Garabedian, 1992, p. 5). Quaternary-aged basalts are estimated to be 100 to 1,500 feet thick, with the majority of the area in the range of 100 to 500 feet thick (Whitehead, 1992, Plate 3). Individual basalt flows range from 10 to 50 feet thick, averaging 20 to 25 feet thick (Lindholm, 1996, p. 14). Basalt is thickest in the central part of the eastern plain and thins toward the margins. Whitehead (1992, p. 9) estimates the total thickness of the flows to be as great as 5,000 feet. A thin layer (0 to 100 feet) of windblown and stream-produced sediments overlies the basalt. The plain is bounded on the northeast by rocks of the Yellowstone Group (mainly rhyolite) and Idavada Volcanics to the southwest. These rocks may also underlie the plain (Garabedian, 1992, p. 5). Granite of the Idaho batholith borders the plain to the northwest, along with sedimentary rocks and rocks changed by heat and/or pressure (metamorphic) (Cosgrove et al., 1999, p. 10). The Snake River flows along part of the southern boundary and is the only drainage that leaves the plain. A high degree of connectivity with the regional aquifer system is displayed over much of the river as it passes through the plain. However, some reaches are believed to be perched or separated from the main ground water by unsaturated rock, such as the Lewisville-to-Shelley reach. Rivers and streams entering the plain from the south are tributary to the Snake River. With the exception of the Big and Little Wood rivers, rivers entering from the north vanish into the basalts of the Snake River Plain aquifer that have a higher ability to transmit water.

The layered basalts of the Snake River Group host one of the most productive aquifers in the United States. The aquifer is generally considered unconfined, yet may be confined locally because of interbedded clay and dense unfractured basalt (Whitehead, 1992, p. 26). Whitehead (1992, p. 22) and Lindholm (1996, p.1) report that well yields of 2,000 to 3,000 gallons per minute (gpm) are common for wells open to less than 100 feet of the aquifer. Transmissivities obtained from test data in the upper 100 to 200 feet of the aquifer range from less than 0.1 square feet per second (ft^2/sec) to $56 \text{ ft}^2/\text{sec}$ (1.0×10^4 to $4.8 \times 10^6 \text{ ft}^2/\text{day}$; Garabedian, 1992, p. 11, and Lindholm, 1996, p. 18). Lindholm (1996, p. 18) estimates aquifer thickness to range from 100 feet near the plain's margin to thousands of feet near the center. Models of the regional aquifer have used values ranging from 200 to 3,000 feet to represent aquifer thickness (Cosgrove et al., 1999, p.15).

Regional ground water flow is to the southwest paralleling the basin (Cosgrove et al., 1999; deSonneville, 1972, p. 78; Garabedian, 1992, p. 48; and Lindholm, 1996, p. 23). Reported water table gradients range from 3 to 100 feet/mile and average 12 feet/mile (Lindholm, 1996, p. 22). Gradients steepen at the plain's margin and at discharge locations. The estimated effective ratio of the rock's open space volume to its total volume range from 0.04 to more than 0.25 (Ackerman, 1995, p.1, and Lindholm, 1996, p.16).

The majority of aquifer recharge results from surface water irrigation activities (incidental recharge), which divert water from the Snake River and its tributaries (Ackerman, 1995, p. 4, and Garabedian, 1992, p. 11) and locally from canal leakage. Natural recharge occurs through stream losses, direct precipitation, and tributary basin underflow.

Aquifer discharge occurs primarily as seeps and springs on the northern wall of the Snake River canyon near Thousand Springs and near American Falls and Blackfoot (Garabedian, 1992, p.17). To a lesser degree, discharge also occurs through pumping and underflow.

The East Margin Area is among the most transmissive regions of the regional aquifer, therefore it has a higher ability to transmit water. A transmissivity of 21 ft²/sec was used to represent the upper 200 feet of the regional aquifer in the East Margin Area in the three-dimensional USGS ground water flow model (Garabedian, 1992, Plate 6). The equivalent hydraulic conductivity or the rate at which water can move through permeable material is 9,072 feet per day (ft/day). This value is consistent with the range of hydraulic conductivity (9,500 to 11,708 ft/day) calculated using data from a constant-rate aquifer test conducted in 1981 (Jacobson, 1982, p. 23). This range was calculated by dividing the estimated transmissivity (228,000 to 281,000 ft²/day) by the perforated interval of the observation well (24 feet). The geometric mean hydraulic conductivity based on analysis of specific capacity data from PWS wells (135 ft/day) is significantly lower.

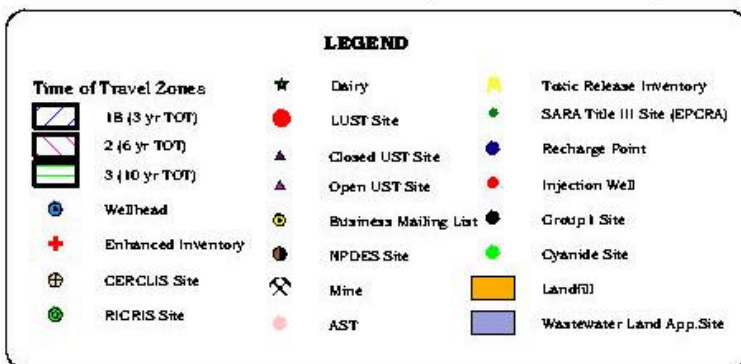
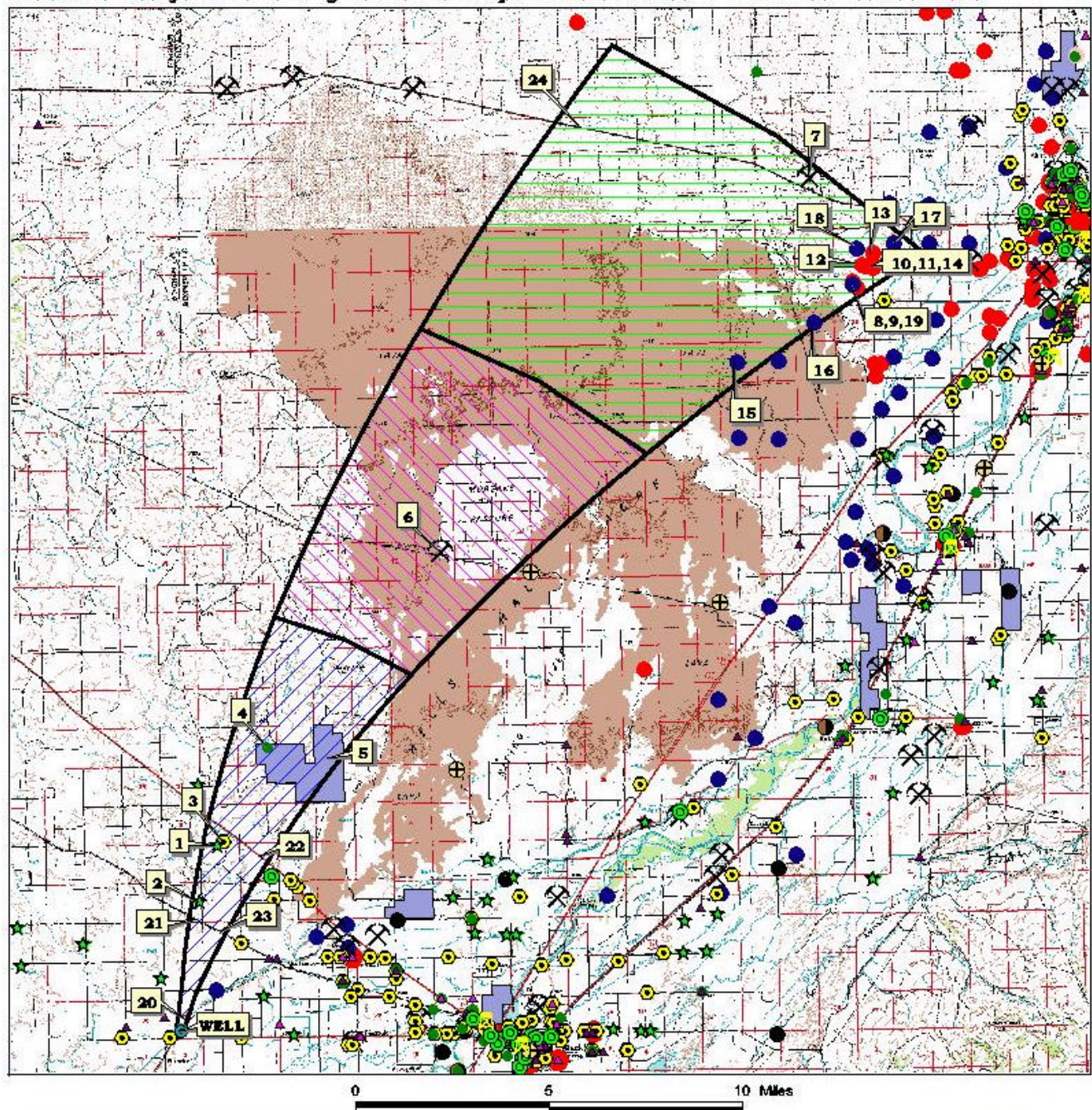
A published water table map of the Upper Snake River Basin (IDWR, 1997, p. 9) indicates that the ground water flow direction in the ESRP aquifer in the East Margin Area is similar to that depicted at the regional scale (e.g., Garabedian, 1992, Plate 4).

Recharge from precipitation and surface water irrigation in the East Margin Area ranges from less than 10 to more than 20 inches per year (Garabedian, 1992, Plate 8). The low end of the range applies to the area near Blackfoot, while the high end applies to the area on the west side of American Falls Reservoir near Aberdeen.

Kjelstrom (1995, p. 13) reports an annual river loss of 280,000 acre-feet to the regional basalt aquifer for the 27.5-mile Lewisville-to-Shelley reach of the Snake River and 110,000 acre-feet for the 23.5-mile Shelley-to-Blackfoot reach. Annual river gains of 1,900,000 acre-feet for the 36.6-mile Blackfoot-to-Neeley reach are also estimated (Kjelstrom, 1995, p. 13). A seepage study conducted in the fall of 1980 on the Portneuf River showed a gain of about 560 cubic feet per second (ft³/sec) (405,691 acre-feet) for the 13-mile Pocatello-to-American Falls Reservoir reach (Jacobson, 1982, p. 16). The average flow in the Blackfoot River near the city of Blackfoot is low at Station #13068500 (5.2 ft³/sec; USGS, 2001) compared to the flow in the Snake River near the city of Blackfoot at Station #13069500 (2,900 ft³/sec; USGS, 2001).

The Wapello Elementary School well is completed in the regional basalt aquifer. The delineated source water assessment area for the Wapello Elementary School well trends in a northeast direction and is elongated and conical in shape. The length of the delineation extends approximately 22 miles and extends into the City of Idaho Falls (Figure 2). The actual data used by WGI in determining the source water assessment delineation areas are available from DEQ upon request.

FIGURE 2. Rockford Elementary Delineation Map and Potential Contaminant Source Locations



PWS# 6060065
WELL

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified potential contaminant sources within the delineation areas. Some of these sources include roadways, dairies, underground storage tanks (USTs), leaking underground storage tanks (LUSTS), a landfill transfer station, and wastewater land application (WLAP) sites.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted during April of 2002. The first phase involved identifying and documenting potential contaminant sources within the Wapello Elementary School source water assessment area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area. This task was undertaken with the assistance of Mr. Ron Brown. At the time of the enhanced inventory, no additional potential contaminant sources were found within the delineated source water area. Maps with well locations, delineated areas and potential contaminant sources are provided with this report (Figure 2). Each potential contaminant source has been given a unique site number that references tabular information associated with the public water well (Appendix A).

Section 3. Susceptibility Analyses

The susceptibility of the well to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for the well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix B contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors. These factors are surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the water producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet from the surface protect the ground water from contamination.

Hydrologic sensitivity was rated high for the well (Table 1). This is based upon moderate to well drained regional soil classes defined by the National Resource Conservation Service (NRCS). Soils that have poor to moderate drainage characteristics have better filtration capabilities than faster draining soils. The well is also potentially sensitive due to the vadose composition consisting of sand and gravel. The depth to first ground water is less than 300 feet from the surface. In addition, the well lacks 50 feet cumulative thickness of low permeability material that helps to reduce the downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system that can better protect the water. If the casing and annular seal both extend into a low permeability unit then the possibility of cross contamination from other aquifer layers is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capabilities. When information was adequate, a determination was made as to whether the casing and annular seals extend into low permeability units and whether current public water system (PWS) construction standards are met.

The system construction score was rated high for the well. The 1998 sanitary survey states the wellhead does not have a well vent. The purpose of the vent is to vent the space between the casing and the column and prevent a vacuum from forming when the well turns on and draws down the water table. A vacuum could draw in contamination through joints or leaks in the casing or cause the well to slough. The sanitary survey also states the surface seal is in good condition. The well log indicates that the annular seal and well casing do not extend into low permeable geologic formations, two important aspects of proper well construction. The well is located outside a 100-year floodplain, which may decrease the chance of contaminants being drawn into the drinking water source by surface water flooding.

The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all public water systems to follow DEQ standards. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Under current standards, all PWS wells are required to have a 50-foot buffer around the wellhead and if the well is designed to yield greater than 50 gpm a minimum of a 6-hour pump test is required. These standards are used to rate the system construction for the well by evaluating items such as condition of wellhead and surface seal, whether the casing and annular space is within consolidated material or 18 feet below the surface, the thickness of the casing, etc. If all criteria are not met, the public water source does not meet the IDWR Well Construction Standards. In this case, the well does not meet all the criteria outlined in the IDWR Well Construction Standards.

Potential Contaminant Source and Land Use

The potential contaminant sources and land use within the delineated zones of water contribution are assessed to determine the well's susceptibility. When agriculture is the predominant land use in the area, this may increase the likelihood of agricultural wastewater infiltrating the ground water system. Agricultural land is counted as a source of leachable contaminants and points are assigned to this rating based on the percentage of agricultural land. The predominant land use within the delineated capture zones of the Wapello Elementary School is irrigated agricultural land.

In terms of potential contaminant sources and land use susceptibility the ratings are as follows. The well rated high for IOCs (i.e., nitrates), VOCs (i.e. petroleum related products), and SOC (i.e., pesticides), and moderate for microbial contaminants (i.e., fecal coliform).

Potential contaminant sources found within the delineated areas include Wapello Road (road within 15 feet of the well), dairies USTs, LUSTs, a landfill transfer station, and WLAP sites. Also found were sites regulated under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), Superfund Amendments and Reauthorization Act (SARA), Resource Conservation Recovery Act (RCRA), National Pollutant Discharge Elimination System (NPDES), the Toxic Release Inventory (TRI), and transportation corridors, such as roads and railways. Most of these potential contaminant sources fall within the 6-10 year time of travel zone. The locations of potential contaminant sources and delineated TOT zones for the well is shown on Figure 2.

Final Susceptibility Rating

A detection above a drinking water standard MCL or any detection of a VOC or SOC at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, potential contaminant sources within 50 feet of a wellhead will automatically lead to a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking.

Table 1. Summary of Wapello Elementary School Susceptibility Evaluation

Drinking Water Source	Susceptibility Scores									
	Hydrologic Sensitivity	Potential Contaminant Inventory and Land Use				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	H	H	M	H	H*	H*	H*	H*

H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

H* = Indicates source automatically scored high susceptibility due to Wapello Road within 15 feet of the well.

Susceptibility Summary

In terms of final susceptibility the well automatically scored high for IOCs, VOCs, SOC, and microbial contaminants because Wapello Road was located within 15 feet of the well. Hydrologic sensitivity and system construction scores rated high. Potential contaminant inventory and land uses scores rated high for IOC, VOC, and SOC, and moderate for microbials.

The IOCs, barium, fluoride, and nitrate represent the main water chemistry recorded in the public water system, although the reported concentrations of these chemicals were below the MCL for each chemical. Water chemistry tests have not detected VOCs or SOCs in the drinking water.

The county level agriculture-chemical use is considered high in this area due to a significant amount of agricultural land. Although there may only be a small portion of agriculture land in the direct vicinity of the well, it is useful as a tool in determining the overall chemical usage such as pesticides and how it may impact ground water through infiltration and surface water runoff. In addition, there were potential sources of contamination found within the well's delineated TOT zones (Figure 2).

Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Wapello Elementary School, drinking water protection activities should continue efforts aimed at keeping the distribution system free of microbial contaminants that may affect the drinking water quality. If microbial contaminants continue and/or arise, Wapello Elementary School may want to consider the addition of a disinfection system. In addition, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey. The well should maintain sanitary standards regarding wellhead protection. Also, any new sources that could be considered potential contaminant sources in the well's zones of contribution should also be investigated and monitored to prevent future contamination. No potential contaminants (pesticides, paint, fuel, cleaning supplies, etc.) should be stored or applied within 50 feet of the well. Land uses within most of the source water assessment area are outside the direct jurisdiction of the Wapello Elementary School. Therefore partnerships with state and local agencies, industrial and commercial groups should be established to ensure future land uses are protective of ground water quality. Educating employees and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods, proper lawn and garden care, and the importance of water conservation to name but a few. There are multiple resources available to help water systems implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture and the Bingham County Soil and Water Conservation District. As major transportation corridors intersect the delineation (such as Highway 26/91), the Idaho Department of Transportation should be involved in protection efforts.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

DEQ Pocatello Regional Office (208) 236-6160

DEQ State Office (208) 373-0502

Website: <http://www.state.id.us>

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper, Idaho Rural Water Association, at 208-343-7001 (mlharper@idahoruralwater.com) for assistance with drinking water protection (formerly wellhead protection) strategies.

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POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Appendix A

Wapello Elementary School Potential Contaminant Source Inventory

Table 2. Potential Contaminants

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
	Major Transportation Corridor	0-3	GIS Map	IOC, VOC, SOC, Microbial
	Major Transportation Corridor	0-3	GIS Map	IOC, VOC, SOC, Microbial
1	UST Site-Open	0-3	Database Inventory	VOC, SOC
2	Dairy	0-3	Database Inventory	IOC, Microbial
3	Lawn Maintenance	0-3	Database Inventory	IOC, SOC
4	Feed-Dealers (Wholesale)	0-3	Database Inventory	IOC, Microbial
5	Welding	0-3	Database Inventory	IOC, VOC, SOC
6	Dried/Dehydrated Fruits Veg.	0-3	Database Inventory	IOC, Microbial
7	Pumps-Manufacturers	0-3	Database Inventory	VOC, SOC
8	RCRA Site	0-3	Database Inventory	VOC, SOC
9	Mine/Quarry	0-3	Database Inventory	IOC, VOC, SOC
10	Mine/Quarry	0-3	Database Inventory	IOC, VOC, SOC
11	Mine/Quarry	0-3	Database Inventory	IOC, VOC, SOC
12	SARA Site	0-3	Database Inventory	IOC, VOC, SOC
13	SARA Site	0-3	Database Inventory	IOC, VOC, SOC
14	SARA Site	0-3	Database Inventory	IOC, VOC, SOC
15	Wastewater Land Application Site	0-3	Database Inventory	IOC, Microbial
16	LUST Site-Cleanup Incomplete	3-6	Database Inventory	VOC, SOC
17	LUST Site-Cleanup Incomplete	3-6	Database Inventory	VOC, SOC
18	UST Site-Open	3-6	Database Inventory	VOC, SOC
19	UST Site-Closed	3-6	Database Inventory	VOC, SOC
20	UST Site-Open	3-6	Database Inventory	VOC, SOC
21	UST Site-Closed	3-6	Database Inventory	VOC, SOC
22	UST Site-Closed	3-6	Database Inventory	VOC, SOC
23	UST Site-Closed	3-6	Database Inventory	VOC, SOC
24	UST Site-Closed	3-6	Database Inventory	VOC, SOC
25	UST Site-Closed	3-6	Database Inventory	VOC, SOC
26	UST Site-Closed	3-6	Database Inventory	VOC, SOC
27	UST Site-Closed	3-6	Database Inventory	VOC, SOC
28	UST Site-Open	3-6	Database Inventory	VOC, SOC
29	UST Site-Closed	3-6	Database Inventory	VOC, SOC
30	UST Site-Open	3-6	Database Inventory	VOC, SOC
31	Dairy	3-6	Database Inventory	IOC
32	Dairy	3-6	Database Inventory	IOC
33	Dairy	3-6	Database Inventory	IOC
34	Auto Repair & Service	3-6	Database Inventory	IOC, VOC, SOC
35	Machine Shops	3-6	Database Inventory	IOC, VOC, SOC
36	Trucking-Contract Hauling	3-6	Database Inventory	VOC, SOC
37	Tire-Retreading/Repair	3-6	Database Inventory	VOC, SOC
38	Grading Contractors	3-6	Database Inventory	IOC, VOC, SOC
39	Home Improvements	3-6	Database Inventory	VOC, SOC
40	Cleaners	3-6	Database Inventory	VOC
41	Auto Body-Repair & Paint	3-6	Database Inventory	IOC, VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
42	Janitor Service	3-6	Database Inventory	VOC
43	Meat Processing	3-6	Database Inventory	IOC, VOC, SOC
44	Fireplace Equipment-Manufacturers	3-6	Database Inventory	IOC, VOC, SOC
45	Boat Dealers	3-6	Database Inventory	IOC, VOC, SOC
46	Garbage Collection	3-6	Database Inventory	IOC, VOC, SOC
47	Welding	3-6	Database Inventory	IOC, VOC, SOC
48	Foundries-Steel	3-6	Database Inventory	IOC, VOC, SOC
49	Golf Courses-Public	3-6	Database Inventory	IOC, VOC, SOC
50	Printers	3-6	Database Inventory	IOC, VOC
51	Funeral Directors	3-6	Database Inventory	IOC, VOC
52	Potatoes-Processed	3-6	Database Inventory	IOC
53	Printers	3-6	Database Inventory	IOC, VOC
54	Aircraft-Dealers	3-6	Database Inventory	IOC, VOC, SOC
55	City Government-Transportation Program	3-6	Database Inventory	VOC, SOC
56	Newspapers (Publishers)	3-6	Database Inventory	IOC, VOC
57	Trailer-Manufacturers	3-6	Database Inventory	VOC, SOC
58	Truck Renting & Leasing	3-6	Database Inventory	VOC, SOC
59	Electric Companies	3-6	Database Inventory	IOC, VOC
60	Toxic Release Inventory Site	3-6	Database Inventory	VOC, SOC
61	CERCLA Site	3-6	Database Inventory	IOC, VOC
62	RCRA Site	3-6	Database Inventory	VOC, SOC
63	RCRA Site	3-6	Database Inventory	VOC
64	RCRA Site	3-6	Database Inventory	IOC, SOC
65	Mine/Quarry	3-6	Database Inventory	IOC, VOC, SOC
66	Mine/Quarry	3-6	Database Inventory	IOC, VOC, SOC
67	SARA Site	3-6	Database Inventory	VOC, SOC
68	SARA Site	3-6	Database Inventory	IOC, VOC, SOC
69	SARA Site	3-6	Database Inventory	IOC, VOC, SOC
70	SARA Site	3-6	Database Inventory	IOC, VOC, SOC
71	SARA Site	3-6	Database Inventory	IOC, VOC, SOC
72	SARA Site	3-6	Database Inventory	IOC, VOC, SOC
73	Recharge Point	3-6	Database Inventory	IOC, VOC, SOC
74	Group 1 Site	3-6	Database Inventory	
75	Group 1 Site	3-6	Database Inventory	
76	Group 1 Site	3-6	Database Inventory	
77	Wastewater Land Application Site	3-6	Database Inventory	IOC
78	Wastewater Land Application Site	3-6	Database Inventory	IOC
79	LUST Site-Cleanup Complete	6-10	Database Inventory	VOC, SOC
80	LUST Site-Cleanup Complete	6-10	Database Inventory	VOC, SOC
81	LUST Site-Cleanup Complete	6-10	Database Inventory	VOC, SOC
82	LUST Site-Cleanup Complete	6-10	Database Inventory	VOC, SOC
83	LUST Site-Cleanup Complete	6-10	Database Inventory	VOC, SOC
84	LUST Site-Cleanup Complete	6-10	Database Inventory	VOC, SOC
85	LUST Site-Cleanup Complete	6-10	Database Inventory	VOC, SOC
86	LUST Site-Cleanup Incomplete	6-10	Database Inventory	VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
87	LUST Site-Cleanup Complete	6-10	Database Inventory	VOC, SOC
88	UST Site-Closed	6-10	Database Inventory	VOC, SOC
89	UST Site-Closed	6-10	Database Inventory	VOC, SOC
90	UST Site-Closed	6-10	Database Inventory	VOC, SOC
91	UST Site-Open	6-10	Database Inventory	VOC, SOC
92	UST Site-Open	6-10	Database Inventory	VOC, SOC
93	UST Site-Open	6-10	Database Inventory	VOC, SOC
94	UST Site-Closed	6-10	Database Inventory	VOC, SOC
95	UST Site-Closed	6-10	Database Inventory	VOC, SOC
96	UST Site-Closed	6-10	Database Inventory	VOC, SOC
97	UST Site-Closed	6-10	Database Inventory	VOC, SOC
98	UST Site-Open	6-10	Database Inventory	VOC, SOC
99	UST Site-Open	6-10	Database Inventory	VOC, SOC
100	UST Site-Closed	6-10	Database Inventory	VOC, SOC
101	UST Site-Open	6-10	Database Inventory	VOC, SOC
102	UST Site-Closed	6-10	Database Inventory	VOC, SOC
103	UST Site-Closed	6-10	Database Inventory	VOC, SOC
104	UST Site-Closed	6-10	Database Inventory	VOC, SOC
105	UST Site-Closed	6-10	Database Inventory	VOC, SOC
106	UST Site-Open	6-10	Database Inventory	VOC, SOC
107	UST Site-Closed	6-10	Database Inventory	VOC, SOC
108	UST Site-Closed	6-10	Database Inventory	VOC, SOC
109	UST Site-Closed	6-10	Database Inventory	VOC, SOC
110	UST Site-Closed	6-10	Database Inventory	VOC, SOC
111	UST Site-Open	6-10	Database Inventory	VOC, SOC
112	UST Site-Open	6-10	Database Inventory	VOC, SOC
113	UST Site-Open	6-10	Database Inventory	VOC, SOC
114	UST Site-Closed	6-10	Database Inventory	VOC, SOC
115	UST Site-Closed	6-10	Database Inventory	VOC, SOC
116	UST Site-Closed	6-10	Database Inventory	VOC, SOC
117	UST Site-Closed	6-10	Database Inventory	VOC, SOC
118	UST Site-Closed	6-10	Database Inventory	VOC, SOC
119	UST Site-Open	6-10	Database Inventory	VOC, SOC
120	UST Site-Closed	6-10	Database Inventory	VOC, SOC
121	UST Site-Closed	6-10	Database Inventory	VOC, SOC
122	UST Site-Open	6-10	Database Inventory	VOC, SOC
123	UST Site-Closed	6-10	Database Inventory	VOC, SOC
124	UST Site-Closed	6-10	Database Inventory	VOC, SOC
125	UST Site-Open	6-10	Database Inventory	VOC, SOC
126	UST Site-Closed	6-10	Database Inventory	VOC, SOC
127	UST Site-Open	6-10	Database Inventory	VOC, SOC
128	UST Site-Closed	6-10	Database Inventory	VOC, SOC
129	UST Site-Closed	6-10	Database Inventory	VOC, SOC
130	UST Site-Closed	6-10	Database Inventory	VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
131	UST Site-Open	6-10	Database Inventory	VOC, SOC
132	UST Site-Closed	6-10	Database Inventory	VOC, SOC
133	UST Site-Closed	6-10	Database Inventory	VOC, SOC
134	UST Site-Closed	6-10	Database Inventory	VOC, SOC
135	UST Site-Closed	6-10	Database Inventory	VOC, SOC
136	UST Site-Open	6-10	Database Inventory	VOC, SOC
137	UST Site-Closed	6-10	Database Inventory	VOC, SOC
138	UST Site-Closed	6-10	Database Inventory	VOC, SOC
139	UST Site-Closed	6-10	Database Inventory	VOC, SOC
140	UST Site-Closed	6-10	Database Inventory	VOC, SOC
141	UST Site-Closed	6-10	Database Inventory	VOC, SOC
142	UST Site-Closed	6-10	Database Inventory	VOC, SOC
143	UST Site-Closed	6-10	Database Inventory	VOC, SOC
144	UST Site-Open	6-10	Database Inventory	VOC, SOC
145	UST Site-Closed	6-10	Database Inventory	VOC, SOC
146	UST Site-Closed	6-10	Database Inventory	VOC, SOC
147	UST Site-Open	6-10	Database Inventory	VOC, SOC
148	UST Site-Open	6-10	Database Inventory	VOC, SOC
149	UST Site-Open	6-10	Database Inventory	VOC, SOC
150	UST Site-Closed	6-10	Database Inventory	VOC, SOC
151	UST Site-Closed	6-10	Database Inventory	VOC, SOC
152	UST Site-Closed	6-10	Database Inventory	VOC, SOC
153	UST Site-Open	6-10	Database Inventory	VOC, SOC
154	UST Site-Open	6-10	Database Inventory	VOC, SOC
155	UST Site-Closed	6-10	Database Inventory	VOC, SOC
156	UST Site-Open	6-10	Database Inventory	VOC, SOC
157	UST Site-Open	6-10	Database Inventory	VOC, SOC
158	UST Site-Closed	6-10	Database Inventory	VOC, SOC
159	UST Site-Closed	6-10	Database Inventory	VOC, SOC
160	UST Site-Closed	6-10	Database Inventory	VOC, SOC
161	UST Site-Closed	6-10	Database Inventory	VOC, SOC
162	UST Site-Open	6-10	Database Inventory	VOC, SOC
163	UST Site-Closed	6-10	Database Inventory	VOC, SOC
164	UST Site-Open	6-10	Database Inventory	VOC, SOC
165	UST Site-Closed	6-10	Database Inventory	VOC, SOC
166	UST Site-Open	6-10	Database Inventory	VOC, SOC
167	UST Site-Closed	6-10	Database Inventory	VOC, SOC
168	UST Site-Closed	6-10	Database Inventory	VOC, SOC
169	UST Site-Open	6-10	Database Inventory	VOC, SOC
170	UST Site-Closed	6-10	Database Inventory	VOC, SOC
171	UST Site-Closed	6-10	Database Inventory	VOC, SOC
172	Dairy	6-10	Database Inventory	IOC
174	Laundries	6-10	Database Inventory	SOC
175	Oils-Fuel (Wholesale)	6-10	Database Inventory	VOC, SOC
176	Welding	6-10	Database Inventory	IOC, VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
177	Auto Radiator-Repair	6-10	Database Inventory	IOC, VOC, SOC
178	Tools-Pneumatic (Wholesale)	6-10	Database Inventory	IOC, VOC, SOC
179	Limousine Service	6-10	Database Inventory	VOC, SOC
180	Plumbing Drain & Sewer Cleaning	6-10	Database Inventory	VOC, SOC
181	Crane Service	6-10	Database Inventory	VOC, SOC
182	Hardware-Retail	6-10	Database Inventory	VOC, SOC
183	Auto Body-Repair & Paint	6-10	Database Inventory	IOC, VOC, SOC
184	Potato Harvesting/Planting Equipment	6-10	Database Inventory	VOC, SOC
185	Trucking-Motor Freight	6-10	Database Inventory	VOC, SOC
186	Lawn Maintenance	6-10	Database Inventory	IOC, SOC
187	Laboratories-Medical	6-10	Database Inventory	IOC, VOC, SOC
188	Tree Service	6-10	Database Inventory	IOC, SOC
189	Bicycles-Dealers	6-10	Database Inventory	VOC, SOC
190	Hospitals	6-10	Database Inventory	IOC, SOC
191	Well Drilling	6-10	Database Inventory	IOC, VOC, SOC
192	General Contractors	6-10	Database Inventory	VOC, SOC
193	Landscape Contractors	6-10	Database Inventory	IOC, SOC
194	Mufflers & Exhaust Systems-Engine	6-10	Database Inventory	IOC, VOC, SOC
195	Auto Detail & Clean-Up Service	6-10	Database Inventory	IOC, VOC, SOC
196	Auto Body Shop Equipment/Supplies	6-10	Database Inventory	IOC, VOC, SOC
197	Plating Manufacturers	6-10	Database Inventory	IOC, VOC
198	Packaging Machinery-Wholesale	6-10	Database Inventory	VOC, SOC
199	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
200	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
201	Springs-Auto Sales & Service	6-10	Database Inventory	VOC, SOC
202	Wood Products-Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
203	Trucking-Liquid & Dry Bulk	6-10	Database Inventory	VOC, SOC
204	Bags-Plastic (Manufacturers)	6-10	Database Inventory	VOC, SOC
205	Sausages/Other Prepared Meat Products	6-10	Database Inventory	IOC
206	Warehouses-Cold Storage	6-10	Database Inventory	IOC
207	Home Improvements	6-10	Database Inventory	VOC, SOC
208	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
209	Potatoes-Processed	6-10	Database Inventory	IOC
210	Paint-Retail	6-10	Database Inventory	VOC
211	Water Treatment Equip Service & Supplies	6-10	Database Inventory	IOC, SOC
212	Tire-Dealers Retail	6-10	Database Inventory	VOC, SOC
214	Bicycles-Dealers	6-10	Database Inventory	VOC, SOC
215	Motorcycles & Motor Scooters-Dealers	6-10	Database Inventory	VOC, SOC
216	Mechanical Contractors	6-10	Database Inventory	IOC, VOC, SOC
217	General Contractors	6-10	Database Inventory	VOC, SOC
218	Motorcycles & Motor Scooters-Dealers	6-10	Database Inventory	VOC, SOC
219	Funeral Directors	6-10	Database Inventory	IOC, VOC
220	Funeral Directors	6-10	Database Inventory	IOC, VOC
221	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
222	Machine Shops	6-10	Database Inventory	IOC, VOC, SOC
223	General Contractors	6-10	Database Inventory	VOC, SOC
224	Auto Restoration-Antiques	6-10	Database Inventory	IOC, VOC, SOC
225	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
226	Wheel Alignment-Frame & Axle Service	6-10	Database Inventory	VOC, SOC
227	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
228	Newspapers (Publishers)	6-10	Database Inventory	IOC, VOC
229	Logging	6-10	Database Inventory	VOC, SOC
230	Boat Dealers	6-10	Database Inventory	IOC, VOC, SOC
231	Car Washing & Polishing	6-10	Database Inventory	IOC, VOC, SOC
232	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
233	Auto Parts & Supplies-Retail	6-10	Database Inventory	IOC, VOC, SOC
234	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
235	Laboratories-Dental	6-10	Database Inventory	IOC, VOC, SOC
236	Fertilizers (Wholesale)	6-10	Database Inventory	IOC, SOC
237	Boat Repairing	6-10	Database Inventory	IOC, VOC, SOC
238	Auto Body-Repair & Paint	6-10	Database Inventory	IOC, VOC, SOC
239	Recreational Vehicles	6-10	Database Inventory	VOC, SOC
240	Lawn Mowers	6-10	Database Inventory	VOC, SOC
241	Dairy Products-Wholesale	6-10	Database Inventory	IOC
242	Auto Parts & Supplies-Retail	6-10	Database Inventory	IOC, VOC, SOC
243	Service Stations-Gasoline & Oil	6-10	Database Inventory	VOC, SOC
244	Landscape Contractors	6-10	Database Inventory	IOC, SOC
245	Pet Services	6-10	Database Inventory	IOC
246	Auto Body-Repair & Paint	6-10	Database Inventory	IOC, VOC, SOC
247	Laboratories-Dental	6-10	Database Inventory	IOC, VOC, SOC
248	Photo Finishing-Retail	6-10	Database Inventory	VOC
249	Signs Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
250	Color-Offset Photo Engrave	6-10	Database Inventory	IOC, VOC
251	Electric Equipment & Supplies (Wholesale)	6-10	Database Inventory	IOC, VOC
252	Culverts	6-10	Database Inventory	VOC, SOC
253	Well Drilling	6-10	Database Inventory	IOC, VOC, SOC
255	Veterinarians	6-10	Database Inventory	IOC, SOC
256	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
257	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
258	Labels-Paper Manufacturers	6-10	Database Inventory	VOC
259	Shelving Manufacturers	6-10	Database Inventory	VOC
260	Home Builders	6-10	Database Inventory	VOC, SOC
261	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
262	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
263	Cleaners	6-10	Database Inventory	VOC
264	Electric Equipment & Supplies (Wholesale)	6-10	Database Inventory	IOC, VOC
265	Cleaners	6-10	Database Inventory	VOC
266	Mechanical Contractors	6-10	Database Inventory	IOC, VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
267	Lawn Mowers-Sharpen & Repair	6-10	Database Inventory	IOC, VOC, SOC
268	Auto Body-Repair & Paint	6-10	Database Inventory	IOC, VOC, SOC
269	Playground Equipment Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
270	Decals Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
271	Janitors Supplies (Wholesale)	6-10	Database Inventory	VOC
272	Laboratories-Dental	6-10	Database Inventory	IOC, VOC, SOC
273	Laboratories-Dental	6-10	Database Inventory	IOC, VOC, SOC
275	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
276	Auto Detail & Clean-Up Service	6-10	Database Inventory	IOC, VOC, SOC
277	Goldsmiths & Silversmiths	6-10	Database Inventory	IOC, VOC
278	Fuel Injection Equipment Repair	6-10	Database Inventory	IOC, VOC, SOC
279	Printers	6-10	Database Inventory	IOC, VOC
280	Landscape Contractors	6-10	Database Inventory	IOC, SOC
281	Motorcycles & Motor Scooters-Repair &	6-10	Database Inventory	IOC, VOC, SOC
282	Recreational Vehicles-Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
283	Paint-Retail	6-10	Database Inventory	VOC
284	Railroads	6-10	Database Inventory	IOC, VOC, SOC
285	Hospitals	6-10	Database Inventory	IOC, SOC
286	Taxicabs	6-10	Database Inventory	VOC, SOC
287	Water Treatment Equip Service & Supplies	6-10	Database Inventory	IOC, SOC
288	Drapery & Curtain Cleaners	6-10	Database Inventory	VOC
289	Electric Equipment & Supplies (Wholesale)	6-10	Database Inventory	IOC, VOC
290	Auto Dealers-New Cars	6-10	Database Inventory	VOC, SOC
291	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
292	Movers	6-10	Database Inventory	VOC, SOC
293	Auto Body-Repair & Paint	6-10	Database Inventory	IOC, VOC, SOC
294	Plants-Interior Design & Maintenance	6-10	Database Inventory	IOC, SOC
295	Janitor Service	6-10	Database Inventory	VOC
296	Batteries-Storage (Wholesale)	6-10	Database Inventory	IOC
297	Commercial Printing	6-10	Database Inventory	IOC, VOC
298	Water & Sewage Companies-Utility	6-10	Database Inventory	IOC, VOC
299	Screen Printing	6-10	Database Inventory	IOC, VOC
300	Candy & Confectionery Manufacturers	6-10	Database Inventory	IOC, VOC
301	Ice Cream & Frozen Desserts	6-10	Database Inventory	IOC
302	Auto Seatcovers Tops & Upholstery	6-10	Database Inventory	VOC, SOC
303	Oils-Fuel (Wholesale)	6-10	Database Inventory	VOC, SOC
304	Fire Departments	6-10	Database Inventory	VOC, SOC
305	Fire Departments	6-10	Database Inventory	VOC, SOC
306	Fire Departments	6-10	Database Inventory	VOC, SOC
307	Fire Protection Equipment & Supplies	6-10	Database Inventory	VOC, SOC
308	Welding	6-10	Database Inventory	IOC, VOC, SOC
310	Sun Rooms	6-10	Database Inventory	IOC, VOC
311	Home Builders	6-10	Database Inventory	VOC, SOC
312	Veterinarians	6-10	Database Inventory	IOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
313	Photographic Equipment-Repair	6-10	Database Inventory	VOC
314	Signs Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
315	Potato Harvesting/Planting Equipment	6-10	Database Inventory	VOC, SOC
316	General Contractors	6-10	Database Inventory	VOC, SOC
317	Building Contractors	6-10	Database Inventory	IOC, VOC, SOC
318	Paint-Retail	6-10	Database Inventory	VOC
319	Rental Service-Stores & Yards	6-10	Database Inventory	VOC, SOC
320	Storage-Household & Commercial	6-10	Database Inventory	IOC, VOC, SOC
321	Foods-Frozen Manufacturers	6-10	Database Inventory	IOC
322	Millwork Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
323	Septic Tanks-Cleaning & Repair	6-10	Database Inventory	IOC, VOC
324	Tree Service	6-10	Database Inventory	IOC, SOC
325	Signs Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
326	Publishers-Periodical	6-10	Database Inventory	IOC, VOC
327	Photographers-Portrait	6-10	Database Inventory	IOC, VOC
328	Concrete Contractors	6-10	Database Inventory	IOC, VOC, SOC
329	Laboratories-Dental	6-10	Database Inventory	IOC, VOC, SOC
330	Lawn Mowers	6-10	Database Inventory	VOC, SOC
331	Chemicals (Wholesale)	6-10	Database Inventory	IOC, VOC, SOC
332	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
334	Hydraulic Equipment & Supplies (Wholesale)	6-10	Database Inventory	VOC, SOC
335	Canvas Goods Manufacturers	6-10	Database Inventory	VOC
336	Ambulance Service	6-10	Database Inventory	VOC, SOC
337	Water Treatment Equip Service & Supplies	6-10	Database Inventory	IOC, SOC
338	Fire Departments	6-10	Database Inventory	VOC, SOC
339	Foundries-Steel	6-10	Database Inventory	IOC, VOC, SOC
340	Parking Area Maintenance & Marking	6-10	Database Inventory	VOC, SOC
341	Hospitals	6-10	Database Inventory	IOC, SOC
342	Water & Sewage Companies-Utility	6-10	Database Inventory	IOC, VOC
343	Livestock Auction Markets	6-10	Database Inventory	IOC
344	Truck Equipment & Parts (Wholesale)	6-10	Database Inventory	VOC, SOC
345	Steel Fabricators	6-10	Database Inventory	IOC, VOC
346	Cleaners	6-10	Database Inventory	VOC
347	Photo Finishing-Retail	6-10	Database Inventory	VOC
348	Prefabricated Metal Buildings	6-10	Database Inventory	IOC, VOC, SOC
349	Farm Supplies (Wholesale)	6-10	Database Inventory	IOC, SOC
350	Storage-Household & Commercial	6-10	Database Inventory	IOC, VOC, SOC
351	Sewage Disposal Systems	6-10	Database Inventory	IOC, VOC, SOC
352	Excavating Contractors	6-10	Database Inventory	VOC, SOC
353	Grain Elevators	6-10	Database Inventory	IOC, SOC
354	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
355	Machine Shops	6-10	Database Inventory	IOC, VOC, SOC
356	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
357	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
358	Engravers-Glassware Manufacturers	6-10	Database Inventory	VOC, SOC
359	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
360	Cabinets Manufacturers	6-10	Database Inventory	VOC, SOC
361	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
362	Tile-Ceramic-Contractors & Dealers	6-10	Database Inventory	VOC, SOC
363	Publishers-Periodical	6-10	Database Inventory	IOC, VOC
364	Lawn Mowers	6-10	Database Inventory	VOC, SOC
365	Auto Parts & Supplies Wholesale)	6-10	Database Inventory	VOC, SOC
366	Plastics & Plastic Products (Mfrs)	6-10	Database Inventory	VOC, SOC
367	Painters	6-10	Database Inventory	VOC, SOC
368	Paving Contractors	6-10	Database Inventory	VOC, SOC
369	Dresses Manufacturers	6-10	Database Inventory	VOC
370	Stereophonic & High Fidelity Equipment	6-10	Database Inventory	IOC, VOC
371	Tree Service	6-10	Database Inventory	IOC, SOC
372	Tire-Dealers Retail	6-10	Database Inventory	VOC, SOC
374	Auto Dealers-Used Cars	6-10	Database Inventory	VOC, SOC
375	Sporting Goods Manufacturers	6-10	Database Inventory	VOC
376	Printers	6-10	Database Inventory	IOC, VOC
377	Home Builders	6-10	Database Inventory	VOC, SOC
378	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
379	Ornamental Metal Work Manufacturers	6-10	Database Inventory	IOC, VOC
380	Dairy Products-Wholesale	6-10	Database Inventory	IOC
381	Pharmaceutical Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
382	Typesetting (Manufacturers)	6-10	Database Inventory	IOC, VOC
383	Movers	6-10	Database Inventory	VOC, SOC
384	Mufflers & Exhaust Systems-Engine	6-10	Database Inventory	IOC, VOC, SOC
385	Trucking-Motor Freight	6-10	Database Inventory	VOC, SOC
386	Concrete Contractors	6-10	Database Inventory	IOC, VOC, SOC
389	Trucking-Heavy Hauling	6-10	Database Inventory	VOC, SOC
390	Livestock-Dealers (Wholesale)	6-10	Database Inventory	IOC
391	Truck Equipment & Parts (Wholesale)	6-10	Database Inventory	VOC, SOC
392	State Government-National Security	6-10	Database Inventory	VOC, SOC
393	Landscape Contractors	6-10	Database Inventory	IOC, SOC
394	Auto Parts & Supplies-Retail	6-10	Database Inventory	IOC, VOC, SOC
395	Veterinarians	6-10	Database Inventory	IOC, SOC
396	Laboratories-Dental	6-10	Database Inventory	IOC, VOC, SOC
397	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
398	Veterinarians	6-10	Database Inventory	IOC, SOC
399	Artificial Limbs-Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
400	Roofing Contractors	6-10	Database Inventory	IOC, VOC, SOC
401	Printers	6-10	Database Inventory	IOC, VOC
402	Photographers-Portrait	6-10	Database Inventory	IOC, VOC
403	Service Stations-Gasoline & Oil	6-10	Database Inventory	VOC, SOC
404	Photo Finishing-Retail	6-10	Database Inventory	VOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
406	Horse Breeders	6-10	Database Inventory	IOC
407	X-Ray Laboratories-Medical	6-10	Database Inventory	IOC, VOC, SOC
408	Service Stations-Gasoline & Oil	6-10	Database Inventory	VOC, SOC
409	General Contractors	6-10	Database Inventory	VOC, SOC
410	Recycling Centers (Wholesale)	6-10	Database Inventory	IOC, VOC, SOC
411	Water Works Equipment & Supplies	6-10	Database Inventory	IOC, VOC, SOC
412	Brake Service	6-10	Database Inventory	IOC, VOC, SOC
413	Drapery & Curtain Cleaners	6-10	Database Inventory	VOC
414	Auto Parts & Supplies-Retail	6-10	Database Inventory	IOC, VOC, SOC
415	General Contractors	6-10	Database Inventory	VOC, SOC
416	Gas Companies	6-10	Database Inventory	VOC, SOC
417	Barbers Equipment & Supplies (Wholesale)	6-10	Database Inventory	VOC, SOC
419	Auto Machine Shop Service	6-10	Database Inventory	IOC, VOC, SOC
420	Photo Finishing-Retail	6-10	Database Inventory	VOC
421	Pest Control	6-10	Database Inventory	SOC
422	Paint-Retail	6-10	Database Inventory	VOC
423	Printers	6-10	Database Inventory	IOC, VOC
424	Newspapers (Publishers)	6-10	Database Inventory	IOC, VOC
425	Auto Body-Repair & Paint	6-10	Database Inventory	IOC, VOC, SOC
426	Auto Body-Repair & Paint	6-10	Database Inventory	IOC, VOC, SOC
427	Hardware (Wholesale)	6-10	Database Inventory	IOC, VOC, SOC
428	Excavating Contractors	6-10	Database Inventory	VOC, SOC
429	Mold Makers	6-10	Database Inventory	VOC, SOC
430	Printers	6-10	Database Inventory	IOC, VOC
431	Printers	6-10	Database Inventory	IOC, VOC
432	Pumps-Manufacturers	6-10	Database Inventory	VOC, SOC
433	Auto Body-Repair & Paint	6-10	Database Inventory	IOC, VOC, SOC
434	Auto Detail & Clean-Up Service	6-10	Database Inventory	IOC, VOC, SOC
435	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
436	Trailers-Camping & Travel	6-10	Database Inventory	VOC, SOC
437	General Contractors	6-10	Database Inventory	VOC, SOC
438	Industrial Measuring Manufacturers	6-10	Database Inventory	VOC, SOC
439	Home Builders	6-10	Database Inventory	VOC, SOC
440	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
441	Painters	6-10	Database Inventory	VOC, SOC
442	Auto Parts & Supplies-Retail	6-10	Database Inventory	IOC, VOC, SOC
444	Brick-Clay Common & Face Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
445	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
446	Veterinarians	6-10	Database Inventory	IOC, SOC
447	Trucking-Heavy Hauling	6-10	Database Inventory	VOC, SOC
448	Auto Dealers-New Cars	6-10	Database Inventory	VOC, SOC
449	Auto Dealers-New Cars	6-10	Database Inventory	VOC, SOC
450	Bicycles-Dealers	6-10	Database Inventory	VOC, SOC
451	Florists-Supplies (Wholesale)	6-10	Database Inventory	IOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
452	Septic Tanks-Cleaning & Repair	6-10	Database Inventory	IOC, VOC
453	Auto Parts & Supplies-Retail	6-10	Database Inventory	IOC, VOC, SOC
454	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
455	Printers	6-10	Database Inventory	IOC, VOC
456	Photographers-Portrait	6-10	Database Inventory	IOC, VOC
457	Paint-Retail	6-10	Database Inventory	VOC
458	General Contractors	6-10	Database Inventory	VOC, SOC
459	Veterinarians	6-10	Database Inventory	IOC, SOC
460	Signs Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
461	Signs Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
463	Bathtubs & Sinks-Repair & Refinish	6-10	Database Inventory	IOC, VOC, SOC
464	Laboratories-Medical	6-10	Database Inventory	IOC, VOC, SOC
465	Photographers-Portrait	6-10	Database Inventory	IOC, VOC
466	Car Washing & Polishing	6-10	Database Inventory	IOC, VOC, SOC
467	Electric Equipment & Supplies (Wholesale)	6-10	Database Inventory	IOC, VOC
468	Transmissions-Truck Tractor Etc	6-10	Database Inventory	VOC, SOC
469	Paint-Retail	6-10	Database Inventory	VOC
470	Machine Shops	6-10	Database Inventory	IOC, VOC, SOC
471	Tile-Ceramic-Contractors & Dealers	6-10	Database Inventory	VOC, SOC
472	Auto Radiator-Repair	6-10	Database Inventory	IOC, VOC, SOC
473	Photographers-Portrait	6-10	Database Inventory	IOC, VOC
474	Veterinarians	6-10	Database Inventory	IOC, SOC
475	Puzzles Manufacturers	6-10	Database Inventory	VOC
476	Campgrounds	6-10	Database Inventory	IOC, VOC, SOC
477	Garden Centers	6-10	Database Inventory	IOC, SOC
478	Veterinarians	6-10	Database Inventory	IOC, SOC
479	Car Washing & Polishing	6-10	Database Inventory	IOC, VOC, SOC
480	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
481	Laboratories-Medical	6-10	Database Inventory	IOC, VOC, SOC
482	X-Ray Laboratories-Medical	6-10	Database Inventory	IOC, VOC, SOC
483	Auto Detail & Clean-Up Service	6-10	Database Inventory	IOC, VOC, SOC
484	Newspapers (Publishers)	6-10	Database Inventory	IOC, VOC
485	General Contractors	6-10	Database Inventory	VOC, SOC
486	Fire Damage Restoration	6-10	Database Inventory	VOC
487	Pet Services	6-10	Database Inventory	IOC
488	Nurserymen	6-10	Database Inventory	IOC, SOC
489	Tractor-Dealers (Wholesale)	6-10	Database Inventory	VOC, SOC
490	Excavating Contractors	6-10	Database Inventory	VOC, SOC
491	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
492	Auto Renting & Leasing	6-10	Database Inventory	VOC, SOC
493	Trucking-Motor Freight	6-10	Database Inventory	VOC, SOC
494	Truck Renting & Leasing	6-10	Database Inventory	VOC, SOC
495	Truck Renting & Leasing	6-10	Database Inventory	VOC, SOC
496	Truck Renting & Leasing	6-10	Database Inventory	VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
497	Federal Government-National Security	6-10	Database Inventory	VOC, SOC
498	Auto Lube Service	6-10	Database Inventory	VOC, SOC
499	Snowmobiles	6-10	Database Inventory	VOC, SOC
500	Printers	6-10	Database Inventory	IOC, VOC
501	Sheet Metal Work Contractors	6-10	Database Inventory	IOC, VOC
502	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
503	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
504	Powder Coatings Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
505	Dairies	6-10	Database Inventory	IOC
506	Concrete Contractors	6-10	Database Inventory	IOC, VOC, SOC
507	Controls-Control System/Regulators	6-10	Database Inventory	VOC, SOC
508	Wheels	6-10	Database Inventory	VOC, SOC
509	Ornamental Metal Work Manufacturers	6-10	Database Inventory	IOC, VOC
510	General Contractors	6-10	Database Inventory	VOC, SOC
511	Laboratories-Dental	6-10	Database Inventory	IOC, VOC, SOC
512	Auto Repair & Service	6-10	Database Inventory	IOC, VOC, SOC
513	Lawn & Garden Equipment & Supplies	6-10	Database Inventory	IOC, SOC
514	Funeral Directors	6-10	Database Inventory	IOC, VOC
515	Furniture Manufacturers	6-10	Database Inventory	VOC, SOC
516	Service Stations-Gasoline & Oil	6-10	Database Inventory	VOC, SOC
517	Auto Lube Service	6-10	Database Inventory	VOC, SOC
518	Signs Manufacturers	6-10	Database Inventory	IOC, VOC, SOC
519	Printers	6-10	Database Inventory	IOC, VOC
520	NPDES Site	6-10	Database Inventory	IOC
521	Toxic Release Inventory Site	6-10	Database Inventory	VOC, SOC
522	Toxic Release Inventory Site	6-10	Database Inventory	VOC, SOC
523	CERCLA Site	6-10	Database Inventory	IOC, VOC
524	CERCLA Site	6-10	Database Inventory	VOC, SOC
525	RCRA Site	6-10	Database Inventory	IOC, VOC
526	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
527	RCRA Site	6-10	Database Inventory	VOC
528	RCRA Site	6-10	Database Inventory	IOC, VOC
529	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
530	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
531	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
532	RCRA Site	6-10	Database Inventory	VOC, SOC
533	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
534	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
535	RCRA Site	6-10	Database Inventory	VOC
536	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
537	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
538	RCRA Site	6-10	Database Inventory	VOC, SOC
539	RCRA Site	6-10	Database Inventory	IOC, VOC
540	RCRA Site	6-10	Database Inventory	VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
541	RCRA Site	6-10	Database Inventory	IOC, VOC
542	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
543	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
544	RCRA Site	6-10	Database Inventory	VOC
545	RCRA Site	6-10	Database Inventory	VOC, SOC
546	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
547	RCRA Site	6-10	Database Inventory	IOC, VOC, SOC
548	Mine/Quarry	6-10	Database Inventory	IOC, VOC, SOC
549	Mine/Quarry	6-10	Database Inventory	IOC, VOC, SOC
550	Mine/Quarry	6-10	Database Inventory	IOC, VOC, SOC
551	Mine/Quarry	6-10	Database Inventory	IOC, VOC, SOC
552	Mine/Quarry	6-10	Database Inventory	IOC, VOC, SOC
553	Mine/Quarry	6-10	Database Inventory	IOC, VOC, SOC
554	Mine/Quarry	6-10	Database Inventory	IOC, VOC, SOC
555	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
556	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
557	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
558	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
559	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
560	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
561	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
562	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
563	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
564	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
565	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
566	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
567	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
568	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
569	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
570	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
571	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
572	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
573	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
574	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
575	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
576	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
577	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
578	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
579	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
580	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
581	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
582	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
583	Deep Injection Well	6-10	Database Inventory	IOC, VOC, SOC
584	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
585	SARA Site	6-10	Database Inventory	IOC, VOC, SOC

Site #	Source Description ¹	TOT Zone (Years) ²	Source of Information	Potential Contaminants ³
586	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
587	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
588	SARA Site	6-10	Database Inventory	VOC, SOC
589	SARA Site	6-10	Database Inventory	IOC, VOC
590	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
591	SARA Site	6-10	Database Inventory	VOC, SOC
592	SARA Site	6-10	Database Inventory	VOC, SOC
593	SARA Site	6-10	Database Inventory	VOC, SOC
594	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
595	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
596	SARA Site	6-10	Database Inventory	VOC, SOC
597	SARA Site	6-10	Database Inventory	VOC, SOC
598	SARA Site	6-10	Database Inventory	VOC, SOC
599	SARA Site	6-10	Database Inventory	VOC, SOC
600	SARA Site	6-10	Database Inventory	VOC, SOC
601	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
602	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
603	SARA Site	6-10	Database Inventory	IOC, VOC, SOC
604	Recharge Point	6-10	Database Inventory	IOC, VOC, SOC
605	Aboveground Storage Tank	6-10	Database Inventory	VOC, SOC
606	Group 1 Site	6-10	Database Inventory	
607	Group 1 Site	6-10	Database Inventory	
608	Landfill	6-10	Database Inventory	IOC, VOC, SOC

Site #'s are non-sequential

¹ SARA = Superfund Amendments and Reauthorization Act, RCRA = Resource Conservation Recovery Act,
CERCLA = Comprehensive Environmental Response Compensation and Liability Act, TRI = Toxic Release Inventory
NPDES = National Pollutant Discharge Elimination System, UST = underground storage tank,
LUST = leaking underground storage tank,

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead,

³ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Appendix B

Wapello Elementary School Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

1. System Construction

SCORE

Drill Date	3/11/86	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	1998
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	NO	1
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0

Total System Construction Score 5

2. Hydrologic Sensitivity

Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2

Total Hydrologic Score 6

3. Potential Contaminant / Land Use - ZONE 1A

IOC
ScoreVOC
ScoreSOC
ScoreMicrobial
Score

Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2

Potential Contaminant / Land Use - ZONE 1B

Contaminant sources present (Number of Sources)	YES	14	12	13	6
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	18	12	3	
4 Points Maximum		4	4	3	
Zone 1B contains or intercepts a Group 1 Area	YES	0	0	2	0
Land use Zone 1B Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		16	16	17	12

Potential Contaminant / Land Use - ZONE II

Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II Greater Than 50% Irrigated Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0

Potential Contaminant / Land Use - ZONE III

Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0

Cumulative Potential Contaminant / Land Use Score 28 26 29 14

4. Final Susceptibility Source Score

17 16 17 16

5. Final Well Ranking

High High High High